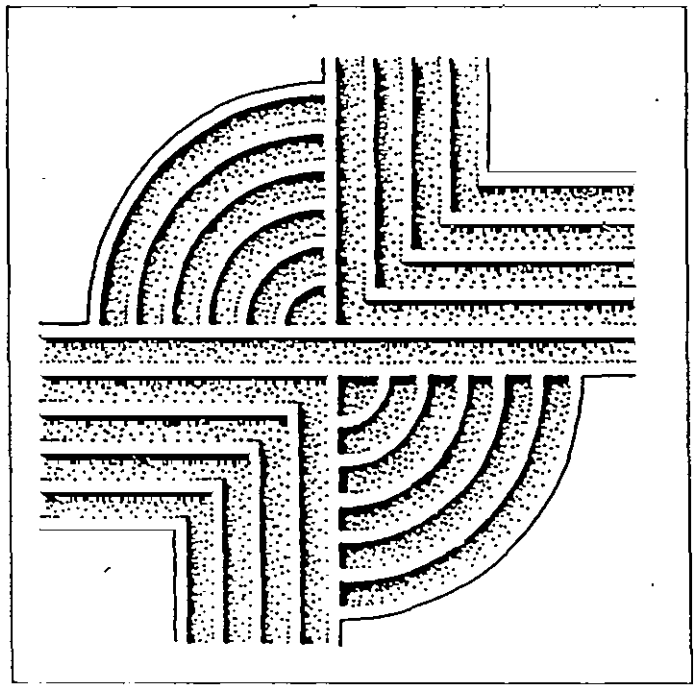
ARCHAEOLOGICAL TESTING OF 38LX115, SALUDA SHOALS PARK ENVIRONMENTAL EDUCATION CENTER, LEXINGTON COUNTY, SOUTH CAROLINA



CHICORA RESEARCH CONTRIBUTION 297

ARCHAEOLOGICAL TESTING OF 38LX115, SALUDA SHOALS PARK ENVIRONMENTAL EDUCATION CENTER, LEXINGTON COUNTY, SOUTH CAROLINA

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ABSTRACT

This study reports on an testing program implemented at 38LX115, situated in the area of a proposed Environmental Education Center at the Saluda Shoals Park, being developed by the Irmo Chapin Recreation Commission. The work was conducted to assist the Irmo Chapin Recreation Commission comply with Section 106 of the National Historic Preservation Act and the regulations codified in 36CFR800.

Archaeological site 38LX115 was initially identified during an archaeological survey conducted by the S.C. Institute of Archaeology and Anthropology in 1976. The site was not fully assessed at that time and relatively little information was available concerning the resource.

Late in the planning process it became apparent that proposed Environmental Education Center and is associated parking lot would impact the archaeological site. Chicora Foundation was requested to conduct limited survey and testing in order to assess the National Register eligibility of the site.

This work, conducted on June 7, 2000, consisted of the excavation of a series of 28 shovel tests at 100 foot intervals over the general site area in an effort to locate the original site concentration identified in 1976. Of these, two tests were positive. This suggested that the site was situated on the southeast edge of a ridge, just above a saddle area. An additional 16 shovel tests were excavated at 25 foot intervals to further define the site boundaries. Of the 44 shovel tests, only six were positive.

In addition to the shovel tests, two 2-foot units were also excavated. These revealed a mixed A/B horizon of up to 0.8 foot in depth overlying a clay subsoil. Artifacts, while present, were sparse.

The materials recovered from the investigations were limited to flakes, primarily quartz and rhyolite. No diagnostic artifacts were recovered.

The site was defined as being about 180 by 80 feet, with a central UTM point at 483110E 3767420N.

Based on the limited amount of material present, the absence of clearly defined concentrations or clusters of remains, the failure to identify a variety of materials (including diagnostic specimens), the site is recommended not eligible for inclusion on the National Register of Historic Places. The information which this site can contribute to our understanding of prehistoric lifeways has been documented by this study and no additional management activities are recommended.

It is possible that archaeological remains may be encountered in the project area during construction (this study did not examine the entire park area). Construction crews should be advised to report any discoveries of concentrations of artifacts (such as bottles, ceramics, or projectile points) or brick rubble to the project engineer, who should in turn report the material to the State Historic Preservation Office or to Chicora Foundation (the process of dealing with late discoveries is discussed in 36CFR800.13(b)(3)). No construction should take place in the vicinity of these late discoveries until they have been examined by an archaeologist and, if necessary, have been processed according to 36CFR800.13(b)(3).

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ACKNOWLEDGMENTS

We appreciate the support and assistance of the Irmo Chapin Recreation Commission, as well as their commitment and concern for South Carolina's cultural resources. I also want to thank Mr. Keith Kargel of the Recreation Commission, for interest in the resources of the park and support of Chicora's programs.

I want to thank Mr. Tom Covington and Ms. Autumn Perkins of our staff who were responsible for assembling the background information for this project. Mr. Tom Covington also assisted in the field investigations. I appreciate their dedication and thoroughness.

INTRODUCTION

Background

Archaeological site 38LX115 was first identified in 1976 during a survey of the Rawls to Kinley Creek area (Carrillo 1976). The site was found outside the construction corridor of that survey, but in an area "which had been predicted as [a] possible site location" (Carrillo 1976:12) (Figure 1). The collection identified two chunks, 15 thinning flakes, 26 "other" flakes, and two biface blanks. Unfortunately no site form was completed for the site and the number was subsequently reassigned (Mr. Keith Derting, personal communication 2000). Consequently, our information about the site is rather limited.

Nevertheless, the site was identified as being on a broad terrace overlooking Rawls Creek to the west and the Saluda River to the south. More generally, the site is situated in northern Lexington County about 10 miles northwest of Columbia and about 3 miles south of Irmo (Figure 2).

The Irmo Chapin Recreation Commission proposed to construct a new recreational facility, the Saluda Shoals Park, in this general area. Initially it was not noticed that the proposed Environmental Education Center, a 5,000 square foot building with associated support structures and parking, was placed on this previously identified site. Army Corp Nationwide Permit SAC-14-2000-023-D was issued and the building plans advanced. In mid-May it was noticed that the proposed plans would likely impact 38LX115 (letter from Ms. Valerie Marcil, S.C. Department of Archives and History to Mr. Dean Herndon, Army Corp, Charleston District, dated May 18, 2000).

By the time the site was identified and reported to the Irmo Chapin Recreation Commission it was too late to change the site plans to avoid the site. The Commission, however, did ask Chicora Foundation to examine the building site area, with the specific goal of gathering additional information concerning 38LX115. An agreement to conduct limited testing in the immediate vicinity of the archaeological site was signed on June 2, with the field investigation taking place on June 7, 2000.

On June 7, the Irmo Chapin Recreation Commission received a letter from the Army Corps, specifying that a survey be conducted "to determine the extent and integrity of the known archaeological site" (letter from Mr. Robert Riggs, Army Corps, to Mr. John Winfield, Irmo Chapin Recreation Commission,

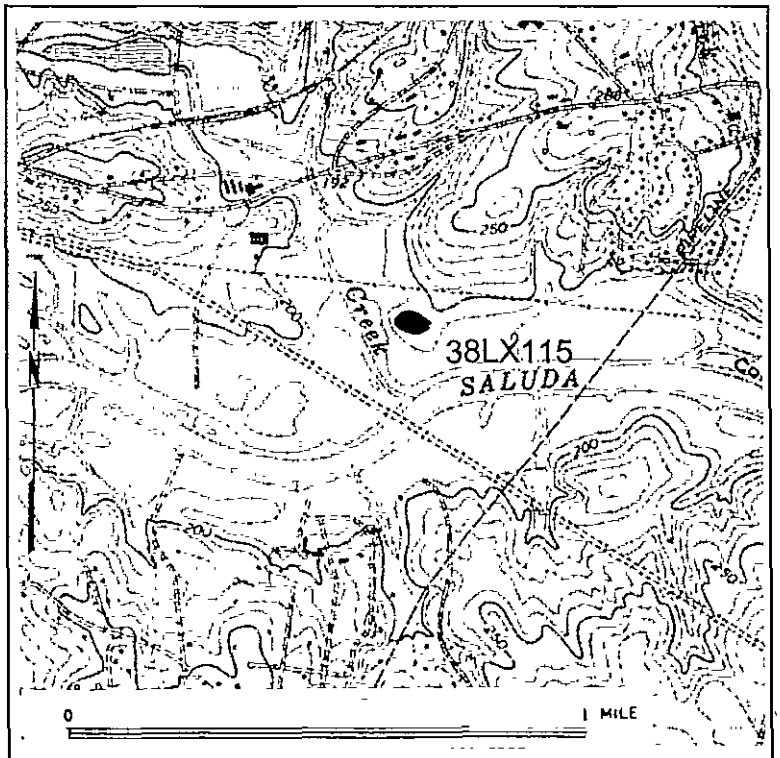

Figure 1. Original location of 38LX115 (from SCIAA site files)

Figure 2. Project vicinity in Lexington County (basemap is USGS South Carolina 1:500,000).

dated June 1, 2000).

These investigations incorporated a review of the site files at the South Carolina Institute of Archaeology and Anthropology. As previously mentioned, relatively little information is available on the identified site, although the State Historic Preservation Office has indicated "the information available suggests that the site is potentially eligible for the National Register, but more work is needed to determine the exact boundaries of the site and to fully evaluate its significance" (letter from Ms. Valerie Marcil, S.C. Department of Archives and History to Mr. Dean Herndon, Army Corps, dated Mary 18, 2000).

The site tests at 38LX115 were conducted on June 7, 2000. The principal investigator and field director for the work was Dr. Michael Trinkley and the field crew consisted of Mr. Tom Covington. A total of 12 person hours were required for this investigation.

The analysis and cataloging of the collections was conducted by Mr. Tom Covington under the supervision of Ms. Debi Hacker at Chicora's Columbia laboratories between June 14 and 16. During this work all materials were evaluated for conservation needs. No materials were found which warranted conservation treatments. Additional information concerning curation is available at the end of this section.

Goals and Methods

The primary goal of this study was to assess the ability of 38LX115 to contribute significant archaeological, historical, or anthropological data. This essentially involves the site's eligibility for inclusion on the National Register of Historic Places, although Chicora Foundation only provides an opinion of National Register eligibility, with the final determination being made by the lead federal agency in consultation with the State Historic Preservation Officer (SHPO) at the South Carolina Department of Archives and History.

Our site testing program was based on the information available to us in the very limited original report (Carrillo 1976). We have not examined the materials originally collected from this site and curated at the S.C. Institute of Archaeology and Anthropology.

In addition to our concern about the site's ability to address significant research questions, we also sought to address the issue of site boundaries. Those provided by the initial survey, documented only on the statewide site maps, were determined to be inadequate for our purposes. Moreover, after 25 years we anticipated that there might be some changes.

The investigations at 38RD1082 consisted of the excavation of shovel tests at 100 foot intervals to cover an area measuring about 500 feet square. This represented the major park development area identified to us by the Irmo Chapin Recreation Commission. The northern boundary of this work was identified as the southern limit of an SCE&G powerline easement. The eastern and western limited were determined by gross topography and the southern limit was determined by the distance from the powerline easement. Although this survey area was not identified in the field by topographic survey, we believe that the boundaries we established are close approximations of those actually intended to be used by the Commission.

At the completion of this initial survey, additional shovel testing was conducted in the vicinity of all positive tests, in the effort to gather additional information concerning the site. The close interval testing not only helps establish site boundaries, but also has the potential to increase the collection of materials, helping to better refine temporal dating and site function studies. The additional tests also provide more information on soil profiles, which can be used to evaluate site conditions.

Finally a series of two 2-foot square test pits were excavated within the site boundaries. These units were excavated using both natural soil zones and arbitrary levels, with all soil being screened through ¼-inch mesh. The units were oriented north-south and were tied into an overall site map prepared during the course of our work. This map not only served to maintain horizonal control over the units, but also helps document the north and west site boundaries, providing considerably more data than the 7.5' USGS topographic map of the site area.

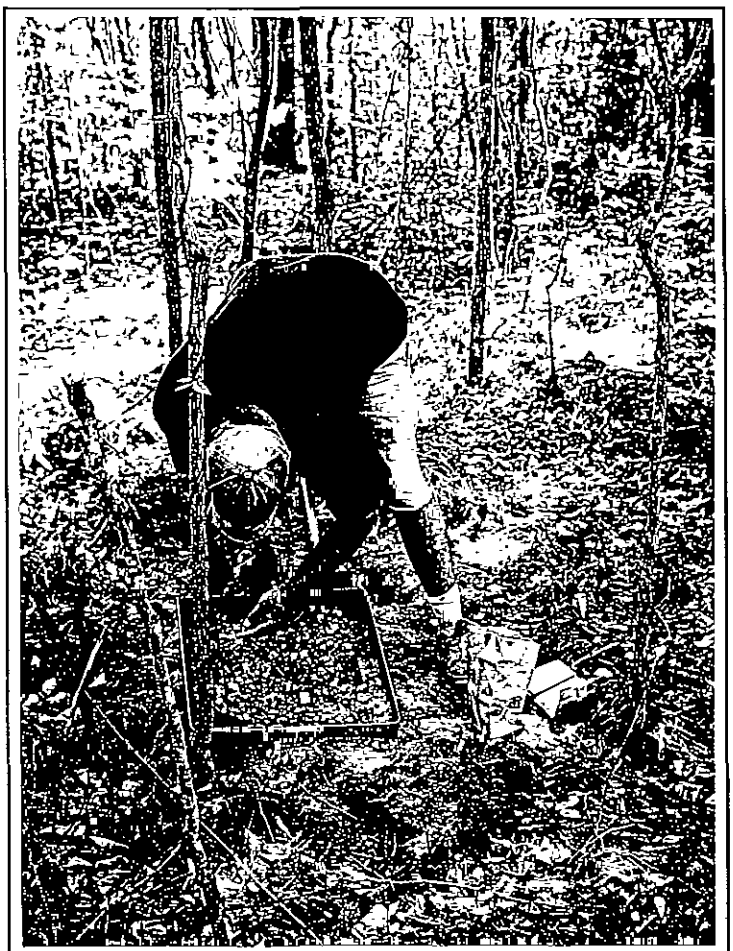

Figure 3. Tom Covington screening shovel test in the survey tract.

Notes were retained on all of the units and photographs were taken of individual tests if warranted in the opinion of the field director. At the conclusion of the investigations a revised Site Inventory Record was prepared and submitted to the South Carolina Institute of Archaeology and Anthropology.

The site assessment process follows that outlined by Townsend et al. (1993) in *National Register Bulletin* 36. While intended for use with historic sites, we have found that the process is equally well suited to prehistoric resources. This evaluative processes involves five steps, forming a clearly defined, explicit rationale for either the site's eligibility or lack of eligibility. Briefly, these steps are:

- identification of the site's data sets or categories of archaeological information such as artifacts, subsistence remains, architectural remains, or sub-surface features;
- identification of the historic context applicable to the site, providing a framework for the evaluative process;
- identification of the important research questions the site *might* be able to address, given the data sets and the context;
- evaluation of the site's archaeological integrity to ensure that the data sets are sufficiently well preserved to address the research questions; and
- identification of "important" research questions among all of those which might be asked and answered at the site.

Taking each of these steps individually, the first is simply to determine what is present at the site — for example, are features present, what types of artifacts are present, from what period does the site date? This represents the collection of basic, and essential, information concerning the site and the types of research contributions it can offer. Obviously there is no reason to propose research on Early Archaic lithic resource selection if only Middle or Late Archaic diagnostic materials are present. Nor is it perhaps appropriate to explore questions focused on subsistence if no faunal materials are present in the collection. This first step is typically addressed through the survey investigations, although in this case it was felt that additional site testing was appropriate.

Next, it is important to understand the historic context of the site — what is the prehistory of the project area and of the specific locality? Research questions must be posed with an understanding of this context and the context helps to direct the focus of research. The development of a historic context can be a lengthy process. Fortunately, there are two very valuable documents which provide an appropriate context. One is *Paleoindian and Early Archaic Period Research in the Lower Southeast: A South Carolina Perspective* (Anderson et al. 1992). The other is *Middle and Late Archaic Archaeological Records of South Carolina: A Synthesis for Research and Resource Management* (Sassaman and Anderson 1994). These documents, prepared by the Council of South Carolina Professional Archaeologists using funding provided by the SHPO provide appropriate contexts for National Register evaluations.

Associated with the development of the context is the formation of research questions ***applicable to the site, its context, and its data sets***. Often this research will grow out of previous projects in the area. Again, the Sassaman and Anderson (1994) volume provides specific guidance appropriate for the development of significant research questions.

Next it is essential to compare the data sets with the research questions — the information necessary to address the research questions must be present at the site, else posing the question is meaningless in the evaluative process. Focusing on small projects, it may be more appropriate to concentrate on only one or perhaps two research questions and devote the energy necessary to fully explore them, then to propose a range of questions which can be only superficially explored with the data sets or resources available.

Finally, Townsend et al. recognize that not all research questions are of equal importance and that only those of fairly high value should be considered in the evaluation of National Register eligibility. Of all the steps this may be the most difficult to address. Some research questions proposed may seem pedestrian. Many may seem to have relatively little relevance to the average person or school-child in South Carolina. However, all of the information collected should focus back on the ultimate goal of better explicating how prehistoric people lived and providing an opportunity to understand lifeways that would otherwise be totally unaccessible.

This approach, of course, has been developed for use documenting eligibility of sites actually being nominated to the National Register of Historic Places. Its explicit approach, however, can be just as useful to document that a site is *not* eligible.

Curation

An updated archaeological site form has been filed with the South Carolina Institute of Archaeology and Anthropology. The field notes and artifacts resulting from these investigations will be curated with that institution using their proveniencing system which consists of site number-site provenience number-artifact number.

All original records and duplicate copies were provided to the institution on pH neutral, alkaline buffered permanent paper. The artifacts are housed in ziplock bags with pH neutral, alkaline buffered tags. Photographic materials, which consist only of color prints, are not archivally stable and have therefore been retained in Chicora's project files.

NATURAL ENVIRONMENT

Physiographic Province

The project area is situated at the northern corner of Lexington County on a substantial terrace overlooking Rawls Creek to the west and the Saluda River to the south. About 4,000 feet to the north of the site, Rawls in joined with Koon Creek and the two empty into the Saluda about 700 feet south of the site (Figures 1 and 2).

Lexington County, situated in the approximate center of South Carolina, is bounded to the north and northeast by Richland County, with the Saluda forming the northeast boundary. To the west is Calhoun County, while to the southwest is Orangeburg County. The southwestern boundary with Aiken County is defined by the flow the North Fork of the Edisto River and Chinquapin Creek. To the northwest are Saluda and Newberry counties, divided by Lake Murray, which is the most prominent feature of the area.

Lake Murray was created by flooding a portion of the Saluda River and was completed in December 1930 by the Lexington Water Power Company. When originally constructed it boasted the largest high earth dam in the world, and the waters it backed up was the largest power reservoir in the United States (Wallace 1951:689-690). Although South Carolinians often claim a love for their heritage, no archaeological, or historical, research was conducted prior to the construction of this facility. In fact, many of the original family cemeteries still lie unrecorded at the bottom of Lake Murray.

The county is located within two distinct physiographic provinces — the Piedmont Plateau in the northern corner of the county and the Sand Hills in the remainder. About a quarter of Lexington County is found within the Piedmont, separated from the coastal plain by an irregular line, known as the Fall Line, that extends southwest from the vicinity of Columbia to Batesburg, and from there over to Augusta. In Lexington County this line is roughly parallel to and just north of US 1.

The project area is technically in the Piedmont Plateau. Streams and drainages are numerous in this area and have cut into the landscape in a dendritic pattern. The main divides form fairly broad ridgetops that have very erodible surfaces. Slope tends to be toward the streams. Ridges are gently to moderately sloping. Stream floodways are narrow and often lacking along the small branches and creeks which have not yet eroded to grade. Along the larger streams and rivers, such as Rawls Creek and the Saluda River, slopes may be steeper and there are large, well defined flooplains. It is also characterized by a range of metavolcanic, quartz, and quartzite materials used by Native Americans for stone tools. Common elevations on the ridgetops and main divides are 350 to 500 feet above mean sea level (AMSL), while along streams they are 200 to 300 feet AMSL.

In contrast, the bordering Carolina Sand Hills are an area of discontinuous hilly topography characterized by rounded hills with gentle slopes, moderate relief, and sandy soils. Although technically part of the Coastal Plain geology, the Sand Hills are distinct geographically. Much of the sand was blown into dunes during the Miocene, although weathered clays and very old river deposits are also present. In many cases these sandy deposits lie directly on the crystalline rocks of the Piedmont (Kovacik and Winberry 1987; Murphy 1995).

The area of 38LX115, therefore, is in close contact with a range of physiographic regions. It is situated in an area of dissected plains consisting of the hills and valleys cut by creeks and rivers as they flow toward the coastal plain. To the south are the Sand Hills of the Coastal Plain, where the topography changes dramatically and the area consists of unconsolidated marine deposits. These areas provide sources for Coastal Plain cherts, also used extensively

for tool manufacture.

Even at a far more local level the site is situated at an interface between the uplands and the flooplains. On a south facing ridge, 38LX115 overlooks a variety of environmental niches which might have been attractive to Native Americans.

In the project area the elevations range from about 120 to 140 feet AMSL, indicating that while the site is in the Piedmont, its location is heavily influenced by its proximity to the Saluda River.

Geology and Soils

Most of the rocks of the Piedmont are gneiss and schist, with some marble and quartzite (Hasselton 1974). Some less intensively metamorphosed rocks, such as slate, occur along the eastern part of the province from southern Virginia into Georgia. This area, called the Slate Belt, is characterized by slightly lower ground with wider river valleys. Consequently, the Slate Belt has been favored for reservoir sites (Johnson 1970), as well as prehistoric occupation (see Coe 1964). In Lexington County many of the Piedmont soils, such as the Nason-Georgeville unit, are weathered from argillites rich in silica and alumina. Other soils are formed in saprolite that weathered from crystalline rocks and "Carolina slates". Soils from the river floodplains formed in sediment that washed from the uplands of the Piedmont province.

The Sand Hills, as previously mentioned, the soils are typically unconsolidated marine deposits of light colored sands and kaoline clays. These soils are generally well drained, although some soil series do exhibit fragipans (Lawrence 1976).

The project area is situated on Cecil fine sandy loams, a series typical of the Piedmont uplands. As expected, the slopes, typically under 6%, are smooth and well-rounded (Lawrence 1976:Map 12). These soils have a remnant A horizon of brown (7.5YR5/2) sandy loam to a depth of about 0.15 foot. This overlies a B horizon of very pale brow (10YR7/4) sandy clay to a depth ranging from 0.6 to 0.8 foot. Below this is a mottled reddish yellow (7.5YR6/8) sandy clay which was excavated to depths of about 1.2 feet.

Examination of aerial photographs for the project area reveal that it has a varied land use history. The earliest available photographs date from May 1943. By this time there is evidence that many tracts were being taken out of cultivation — a practice which continued for the next 30 years. There were extensive floodplain fields, and at least a portion of the site was still under cultivation, although most cultivation appears to be taking place to the east and west (ASX-9C-96). The same fields were visible in 1951, although some fields were fallow and beginning to become overgrown (ASX-7H-35), a condition which continued into the late 1950s (ASX-1AA-122, 1959). By 1966 many of the fields had been abandoned and were now in a mix of pines and hardwoods, suggesting that little effort had been made to convert large tracts into managed forests. Instead they were simply allowed to go into succession (ASX-1GG-192). The aerial photographs of 1970 (ASX-3MM-65) and 1981 (45063-178-54) continue to reveal a decline in cultivated land and both photographs reveal the site area to be completely wooded.

This suggests that the site area has probably gone through cycles of soil erosion and deposition, with erosion occurring during logging and cultivation, while soils likely built up during periods of forestation. In fact, the 1934 South Carolina Erosion Survey by M.W. Lowry found that this portion of Lexington County exhibited severe sheet erosion with frequent gullies (Lowry 1934). Although Lexington County was not included in Stanley Trimble's erosion study of the Southern Piedmont, the adjacent areas of Newberry and Fairfield counties, within only a few miles of the project area, were reported to have lost over a foot of soil through erosion in the nineteenth and early twentieth centuries (Trimble 1974:3). It is part of the area classified by Trimble as having high antebellum erosion land use with postbellum continuation and belonging to his Region III — the Cotton Plantation Area (Trimble 1974:15).

Furthermore, logging in the Southern Piedmont will result in the loss of nearly 0.36 tons of soil per acre per year and mechanical site preparation, perhaps used in the mid-1950s to convert the agricultural fields back to woods, might have resulted in the loss of nearly 7 tons of soil per acre per year (U.S.

Department of Agriculture 1983:25).

In 1826 Robert Mills provided a very general description of the soils in Lexington District, noting that most were"included in the sandy region, covered with an immense growth of pines" (Mills 1972 [1826]:612). Elsewhere he explained:

> The term sand hills conveys an adequate idea of their sterility and barrenness, and of the composition and nature of the soil. It is particularly adapted to the growth of pease and esculent roots (Mills 1826:696).

In contrast, "the most valuable lands . . . lie in the fork, formed by the Broad and Saluda rivers; except those situated on the banks of the rivers, and contiguous to the small streams. In the fork clay predominates, mixed with a rich mould" (Mills 1972 [1826]:612). It is in this area that we find 38LX115.

Mills, like for other districts, expressed his concern over the treatment lands received in Lexington District, commenting, "the same ruinous system of culture is pursued in this, as in other districts, namely, taking all from, and giving back nothing of nourishment to the soil; wearing out the land, and then abandoning it" (Mills 1972 [1826]:612). Less than 20 years later Edmund Ruffin had a similar opinion of the sand hills in adjacent Richland County and the wasteful cultivation of the land, yet it seems to have had little impact on the planters he met. He observed that:

> The lands through Richland, of middling quality, or rather below. Surface moderately undulating, & sandy mostly. Oak growth more in proportion to the pine than lower. No very good culture or land seen by me (Mathew 1992:261).

In spite of these early warnings, the South Carolina Department of Agriculture, Commerce, and Immigration, as late as 1907, found no reason to remark on the threat of erosion, noting only that "elevated flats can be brought to a high state of fertility by proper methods of farming" and that the soils are "superior for peanuts, sweet potatoes, sorghum, watermelons and the staples, oats, cotton, corn, and some wheat" (State Department of Agriculture, Commerce, and Immigration 1907:255). While Richland County boasted of three cotton seed oil mills, Lexington was home to only one, in Leesville (State Department of Agriculture, Commerce, and Immigration 1907: 288).

Climate

Elevation, latitude, and distance from the coast work together to affect the climate of South Carolina. In addition, the more westerly mountains block or moderate many of the cold air masses that flow across the state from west to east. Even the very cold air masses which cross the mountains are warmed somewhat by compression before they descend on the Piedmont and adjacent Sand Hills.

Consequently, the climate of Lexington County is temperate. The winters are relatively mild and the summers warm and humid. Rainfall in the amount of about 46 inches is adequate, although less than in some neighboring counties. About 27 inches of rain occur during the growing season, with periods of drought not uncommon during the summer months. As Hilliard illustrates, these droughts tended to be localized and tended to occur several years in a row, increasing the hardship on those attempting to recover from the previous year's crop failure (Hilliard 1984:16). Perhaps the best wide-scale example of this was the drought of 1845, which caused a series of very serious grain and food shortages throughout the state.

The average growing season is about 232 days, although early freezes in the fall and late frosts in the spring can reduce this period by as much as 30 or more days (Lawrence 1976:82-83). Consequently, most cotton planting, for example, did not take place until early May, avoiding the possibility that a late frost would damage the young seedlings.

Floristics

Piedmont forests generally belong to the Oak-

Figure 4. Ridge vegetation showing survey conditions in most of the tract.

Hickory Formation as established by Braun (1950), while she classifies the Sand Hills as part of the Southeast Evergreen Forest Region. Regardless, the potential natural vegetation of the project area is the Oak-Hickory-Pine forest, composed of medium tall to tall forests of broadlead deciduous and needleleaf evergreen trees (Küchler 1964). The major components of this ecosystem include hickory, shortleaf pine, loblolly pine, white oak, and post oak.

On the ridges further north, there are remnants of xeric forest communities found on the thin soils underlaid by clays. The basic community in these areas is the post oak-blackjack oak forest. Berry notes that the canopies are usually open and the understories are dominated by heaths (Barry 1980:83). In some areas there are shortleaf pines. Other associates include red cedar, white or red oaks, persimmon, black gum, mockernut hickory, dogwood, redbud, and wild black cherry. In the study area, however, the ridges have long ago been taken over by roads, strip malls, apartment complexes, and other forms of development. Many areas, prior to development, had been cleared for agriculture and, once planting lost favor, were abandoned and allowed to grow up in mixed pines and hardwoods. As a result, almost no areas of anything approaching the original forest can be found today.

The north edge of the survey area, consisting

Figure 5. Ridge slope vegetation going into the bottomland, view to the south.

of a powerline easement, also reveals some characteristics of an old field community. Among the sedges and grasses are a number of small pines.

Also present in the project area, especially to the west and south, are more mesic slope and floodplain forests. Such forests are usually characterized by red gum, tulip-poplar, elm, ash, and river birch. In wetter areas sweetgums are found, sometimes with willow oak, sycamore, and shagbark hickories. In the drier areas, red oak, water oak, and mockernut hickories are found. Also present are a variety of vines, including greenbrier, Virginia creeper, and poison ivy.

The project site exhibits considerable ecological diversity. Within 0.25 mile of the site there are examples of several different forest types, including shrub layers that are very attractive to a diverse range of mammals, including deer, opossum, and raccoon.

It is this diversity which probably made the project area attractive to Native Americans, who saw the site area as providing a range of different environmental zones in close proximity, not a "boring" or sterile sand or clay wasteland.

Prehistoric Environment

A reconstruction of paleoenvironmental features has gradually emerged within the past several decades and is based on the work of Whitehead (1965, 1967, 1972, 1973) and Watts (1970, 1975, 1980). Unfortunately, our understanding of environmental change is general and is based almost entirely on pollen analysis of lake sediments and buried organic layers situated in Piedmont areas outside South Carolina. The pollen studies give evidence of vegetational changes which in turn provide suggestions concerning climatic change. These studies can be important to the archaeologist because they allow inferences to be drawn on the nature of the cultural-environmental interactions, such as the adaptive shifts human populations made to counter ecological shifts. It is recognized that these inferences must be based on the paleoenvironment, not the extant environment.

Based largely on work from southeastern Virginia and North Carolina, Whitehead (1965) has employed a tripartite division of the preceding 25,000 years: Full Glacial (25,000 - 15,000 B.P.), Late Glacial (15,000 - 10,000 B.P.), and Post-Glacial or Holocene (10,000 B.P. - present).

During the Full Glacial the Coastal Plain was boreal, although he vegetation was sparse, which suggests a relatively dry climate. Voorhies (1974), based on a paleontological assemblage from east-central Georgia, suggests a cool, moist climate instead. Watts' (1980) work from White Pond at the edge of the Inner Coastal Plain, found jack pine, red spruce, and herbs, which appear to reflect a boreal forest climate. During the Late Glacial period there was a gradual change to a hemlock-northern hardwoods forest type and eventually to a modern condition. From White Pond, Watts (1980) identified a forest dominated by oak, hickory, beech, and ironwood and interprets this assemblage as a mesic deciduous forest typical of a cool and moist environment.

The mesic deciduous forest began to change early in the Holocene and was replaced by a more xeric forest comprised of modern flora. Again from White Pond, Watts (1980) notes the rapid loss of hickory, beech, and ironwood after 9,500 B.P. with the equally rapid rise of southern pine species. The oak species remain, and sweet gum and tupelo are found. For a brief synopsis of the environmental changes occurring around 10,000 B.P. the discussion by Anderson and O'Steen (1992:3) is particularly useful, especially since it recognizes the different zones within South Carolina.

An essentially modern flora is postulated by Whitehead (1965) and Watts (1971) by 5,000 B.P. with the spread of oak-hickory forests. But this, however, fails to recognize the extraordinary importance of the changes occurring during this period. As Sassaman and Anderson note:

> the period of mid-Holocene global warming referred to variously as the Altithermal, Hypsithermal, and Climatic Optimum *is* the Middle Archaic Period, as its effects on vegetation and fauna are considered to be so dramatic that they completely reconfigured patterns of

> human settlement, subsistence, social relations, and technology (Sassaman and Anderson 1994:6).

Unfortunately, as Sassaman and Anderson note, there are relatively few data available for South Carolina and the situation, even now, is far from clear. In fact, while there are mounting data arguing for dramatic changes in the American Midwest, the evidence from the Southeast is, at best, ambiguous. Sassaman and Anderson (1994:7-12) review the available data without arriving at any widely accepted consensus.

When the palynological data are explored, there is evidence that pines advanced in the Coastal Plain, but may have been held back, at least to some degree, in the Piedmont. This spread of pine, it seems, may be associated with the shift of Middle Archaic populations into the upper portions of the state, or at least helped focus attention on "oases of hydric and mesic communities" (Sassaman and Anderson 1994:10).

If geological and soils evidence is examined, there seem to be two focused camps — those arguing that in general South Carolina was fairly moist and those who see cycles of limited moisture followed chronic dry conditions. Although there are too few data to support one proposition over the other, acceptance of cycling might help explain a broad range of site conditions. Erosion seen in the geological record may be from either periods of wet weather or from dry conditions with the denuding of the landscape. Regardless, these erosional periods may explain at least some of the Middle Archaic stratigraphic profiles.

PREHISTORIC SYNOPSIS

Prehistoric Overview

Overviews for South Carolina's prehistory, while of differing lengths and complexity, are available in virtually every compliance report prepared. There are, in addition, some "classic" sources well worth attention, such as Joffre Coe's *Formative Cultures* (Coe 1964), as well as some new general overviews (such as Sassaman et al. 1990 and Goodyear and Hanson 1989). Also extremely helpful, perhaps even essential, are a handful of recent local synthetic statements, such as that offered by Sassaman and Anderson (1994) for the Middle and Late Archaic and by Anderson et al. (1992) for the Paleoindian and Early Archaic. Only a few of the many sources are included in this study, but they should be adequate to give the reader a "feel" for the area and help establish a context for the various sites identified in the study areas. For those desiring a more general synthesis, perhaps the most readable and well balanced is that offered by Judith Bense (1994), *Archaeology of the Southeastern United States: Paleoindian to World War I*. Figure 6 offers a generalized view of South Carolina's cultural periods.

Paleoindian Period

The Paleoindian Period, most commonly dated from about 12,000 to 10,000 B.P., is evidenced by basally thinned, side-notch projectile points; fluted, lanceolate projectile points, side scrapers, end scrapers; and drills (Coe 1964; Michie 1977; Williams 1965). Oliver (1981, 1985) has proposed to extend the Paleoindian dating in the North Carolina Piedmont to perhaps as early as 14,000 B.P., incorporating the Hardaway Side-Notched and Palmer Corner-Notched types, usually accepted as Early Archaic, as representatives of the terminal phase. This view, verbally suggested by Coe for a number of years, has considerable technological appeal.[1] Oliver suggests a continuity from the Hardaway Blade through the Hardaway-Dalton to the Hardaway Side-Notched, eventually to the Palmer Side-Notched (Oliver 1985:199-200). While convincingly argued, this approach is not universally accepted.

The Paleoindian occupation, while widespread, does not appear to have been intensive. Artifacts are most frequently found along major river drainages, which Michie interprets to support the concept of an economy "oriented toward the exploitation of now extinct mega-fauna" (Michie 1977:124). Survey data for Paleoindian tools, most notably fluted points, is somewhat dated, but has been summarized by Charles and Michie 1992). They reveal a widespread distribution across the state (see also Anderson 1992b:Figure 5.1) with at least several concentrations relating to intensity of collector activity. What is clear is that points are found fairly far removed from the origin of the raw material. Charles and Miche suggest that this may "imply a geographically extensive settlement system" (Charles and Michie 1992:247).

Although data are sparse, one of the more attractive theories that explains the widespread distribution of Paleoindian sites is the model tracking the replacement of a high technology forager (or HTF) adaptation by a "progressively more generalized band/microband foraging adaption" accompanied by increasingly distinct regional traditions (perhaps

[1] While never discussed by Coe at length, he did observe that many of the Hardaway points, especially from the lowest contexts, had facial fluting or thinning which, "in cases where the side-notches or basal portions were missing, . . . could be mistaken for fluted points of the Paleo-Indian period" (Coe 1964:64). While not an especially strong statement, it does reveal the formation of the concept. Further insight is offered by Ward's (1983:63) all too brief comments on the more recent investigations at the Hardaway site (see also Daniel 1992).

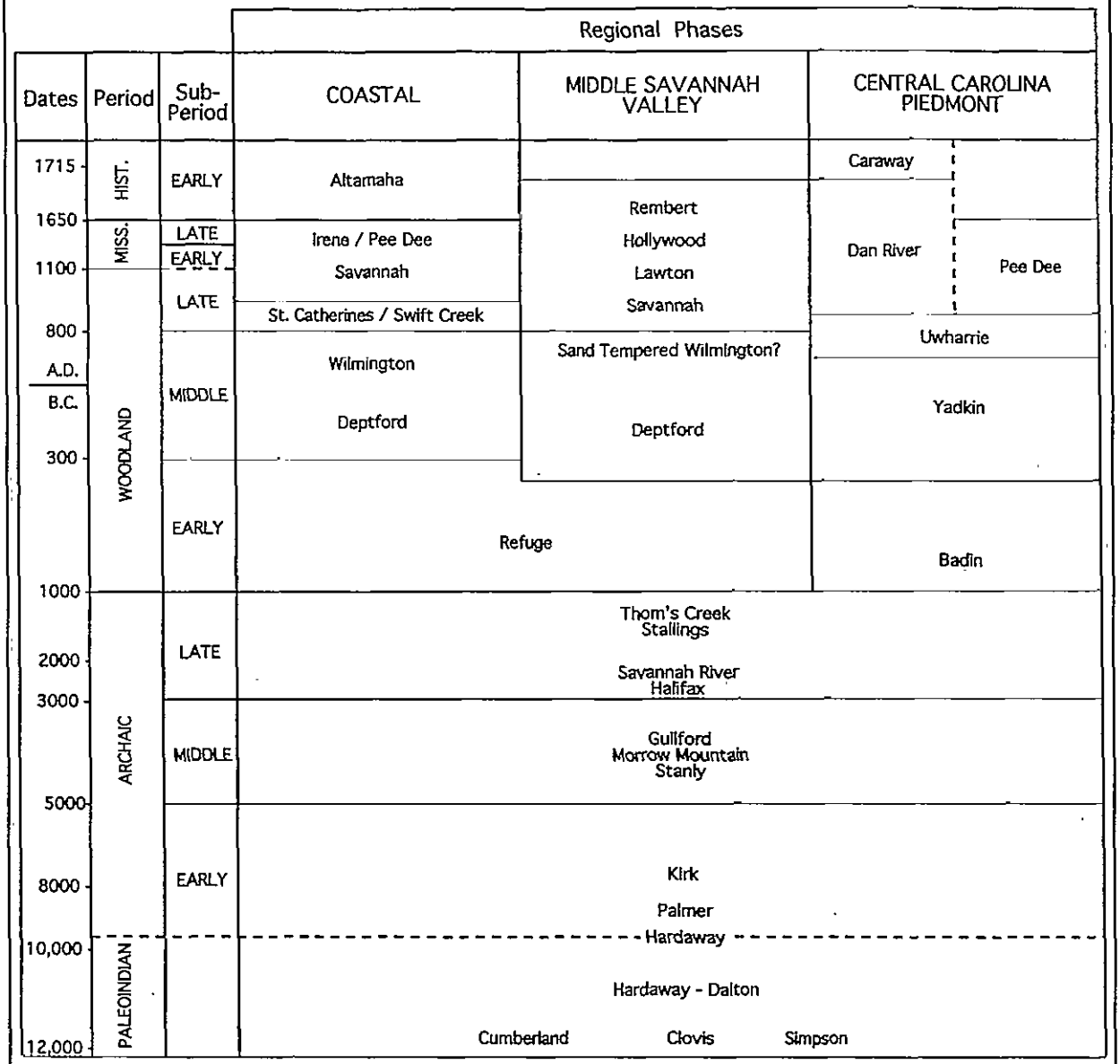

Figure 6. Generalized cultural periods for South Carolina.

reflecting movement either along or perhaps even between river drainages) (Anderson 1992b:46).

Distinctive projectile points include lanceolates such as Clovis, Dalton, perhaps the Hardaway, and Big Sandy (Coe 1964; Phelps 1983; Oliver 1985). A temporal sequence of Paleoindian projectile points was proposed by Williams (1965:24-51), but according to Phelps (1983:18) there is little stratigraphic or chronometric evidence for it. While this is certainly true, a number of authors, such as Anderson (1992a) and Oliver (1985) have assembled impressive data sets. We are inclined to believe that while often not conclusively proven by stratigraphic excavations (and such proof may be an unreasonable expectation), there is a large body of circumstantial evidence. The weight of this evidence tends to provide considerable support.

Unfortunately, relatively little is known about Paleoindian subsistence strategies, settlement systems, or social organization (see, however, Anderson 1992b for an excellent overview and synthesis of what is known). Generally, archaeologists agree that the Paleoindian groups were at a band level of society, were nomadic, and were both hunters and foragers. While population density, based on isolated finds, is thought to have been low, Walthall suggests that toward the end of the period, "there was an increase in population density and in territoriality and that a number of new resource areas were beginning to be exploited" (Walthall 1980:30).

Archaic Period

The Archaic Period, which dates from 10,000 to 3,000 B.P.[2], does not form a sharp break with the Paleoindian Period, but is a slow transition characterized by a modern climate and an increase in the diversity of material culture. Associated with this is a reliance on a broad spectrum of small mammals, although the white tailed deer was likely the most commonly exploited animal. Archaic period assemblages, exemplified by corner-notched and broad-stemmed projectile points, are fairly common, perhaps because the swamps and drainages offered especially attractive ecotones.

Many researchers have reported data suggestive of a noticeable population increase from the Paleoindian into the Early Archaic. This has tentatively been associated with a greater emphasis on foraging. Diagnostic Early Archaic artifacts include the Kirk Corner Notched point. As previously discussed, Palmer points may be included with either the Paleoindian or Archaic period, depending on theoretical perspective. As the climate became hotter and drier than the previous Paleoindian period, resulting in vegetational changes, it also affected settlement patterning as evidenced by a long-term Kirk phase midden deposit at the Hardaway site (Coe 1964:60). This is believed to have been the result of a change in subsistence strategies.

Settlements during the Early Archaic suggest the presence of a few very large, and apparently intensively occupied, sites which can best be considered base camps. Hardaway might be one such site. In addition, there were numerous small sites which produce only a few artifacts — these are the "network of tracks" mentioned by Ward (1983:65). The base camps produce a wide range of artifact types and raw materials

[2] The terminal point for the Archaic is no clearer than that for the Paleoindian and many researchers suggest a terminal date of 4,000 B.P. rather than 3,000 B.P. There is also the question of whether ceramics, such as the fiber-tempered Stallings ware, will be included as Archaic, or will be included with the Woodland. Oliver, for example, argues that the inclusion of ceramics with Late Archaic attributes "complicates and confuses classification and interpretation needlessly" (Oliver 1981:20). He comments that according to the original definition of the Archaic, it "represents a preceramic horizon" and that "the presence of ceramics provides a convenient marker for separation of the Archaic and Woodland periods (Oliver 1981:21). Others would counter that such an approach ignores cultural continuity and forces an artificial, and perhaps unrealistic, separation. Sassaman and Anderson (1994:38-44), for example, include Stallings and Thom's Creek wares in their discussion of "Late Archaic Pottery." While this issue has been of considerable importance along the Carolina and Georgia coasts, it has never affected the Piedmont, which seems to have embraced pottery far later, well into the conventional Woodland period. The importance of the issue in the Sandhills, unfortunately, is not well known.

which has suggested to many researchers long-term, perhaps seasonal or multi-seasonal, occupation. In contrast, the smaller sites are thought of as special purpose or foraging sites (see Ward 1983:67).

Middle Archaic (8,000 to 6,000 B.P.) diagnostic artifacts include Morrow Mountain, Guilford, Stanly and Halifax projectile points. Much of our best information on the Middle Archaic comes from sites investigated west of the Appalachian Mountains, such as the work by Jeff Chapman and his students in the Little Tennessee River Valley (for a general overview see Chapman 1977, 1985a, 1985b). There is good evidence that Middle Archaic lithic technologies changed dramatically. End scrapers, at times associated with Paleoindian traditions, are discontinued, raw materials tend to reflect the greater use of locally available materials, and mortars are initially introduced. Associated with these technological changes there seem to also be some significant cultural modifications. Prepared burials begin to more commonly occur and storage pits are identified. The work at Middle Archaic river valley sites, with their evidence of a diverse floral and faunal subsistence base, seems to stand in stark contrast to Caldwell's Middle Archaic "Old Quartz Industry" of Georgia and the Carolinas, where axes, choppers, and ground and polished stone tools are very rare.

Among the most common of all Middle Woodland artifacts is the Morrow Mountain Stemmed projectile point. Originally divided into two varieties by Coe (1964:37,43) based primarily on the size of the blade and the stem. Morrow Mountain I points had relatively small triangular blades with short, pointed stems. Morrow Mountain II points had longer, narrower blades with long, tapered stems. Coe suggested a temporal sequence from Morrow Mountain I to Morrow Mountain II. While this has been rejected by some archaeologists, who suggest that the differences are entirely related to the life-stage of the point, the debate is far from settled and Coe has considerable support for his scenario.

The Morrow Mountain point is also important in our discussions since it represents a departure from the Carolina Stemmed Tradition. Coe has suggested that the groups responsible for the Middle Archaic Morrow Mountain (and the later Guilford points) were intrusive ("without any background" in Coe's words) into the North Carolina Piedmont, from the west, and were contemporaneous with the groups producing Stanly points (Coe 1964:122-123; see also Phelps 1983:23). Phelps, building on Coe, refers to the Morrow Mountain and Guilford as the "Western Intrusive horizon." Sassaman (1995) has recently proposed a scenario for the Morrow Mountain groups which would support this west-to-east time-transgressive process. Abbott and his colleagues, perhaps unaware of Sassaman's data, dismiss the concept, commenting that the shear distribution and number of these points "makes this position wholly untenable" (Abbott et al. 1995:9).

The controversy surrounding Morrow Mountain also includes its posited date range. Coe (1964:123) did not expect the Morrow Mountain to predate 6500 B.P., yet more recent research in Tennessee reveals a date range of about 7500 to 6500 B.P. Sassaman and Anderson (1994:24) observe that the South Carolina dates have never matched the antiquity of their more western counterparts and suggest continuation to perhaps as late as 5500 B.P. In fact they suggest that even later dates are possible since it can often be difficult to separate Morrow Mountain and Guilford points.

A recently defined point is the MALA. The term is an acronym standing for Middle Archaic and Late Archaic, the strata in which these points were first encountered at the Pen Point site (38BR383) in Barnwell County, South Carolina (Sassaman 1985). These stemmed and notched lanceolate points were originally found in a context suggesting a single-episode event with variation not based on temporal variation. The original discussion was explicitly worded to avoid application of a typology, although as Sassaman and Anderson (1994:27) note, the "type" has spread into more common usage. There are possible connections with both the Halifax points of North Carolina and the Benton points of the middle Tennessee River valley, while the "heartland" for the MALA appears confined to the lower middle Coastal Plain of South Carolina.

The available information has resulted in a variety of competing settlement models. Some argue for

increased sedentism and a reduction of mobility (see Goodyear et al. 1979:111). Ward argues that the most appropriate model is one which includes relatively stable and sedentary hunters and gatherers "primarily adapted to the varied and rich resource base offered by the major alluvial valleys" (Ward 1983:69). While he recognizes the presence of "inter-riverine" sites, he discounts explanations which focus on seasonal rounds, suggesting "alternative explanations . . . [including] a wide range of adaptive responses." Most importantly, he notes that:

> the seasonal transhumance model and the sedentary model are opposite ends of a continuum, and in all likelihood variations on these two themes probably existed in different regions at different times throughout the Archaic period (Ward 1983:69).

Others suggest increased mobility during the Archaic (see Cable 1982). Sassaman (1983) has suggested that the Morrow Mountain phase people had a great deal of residential mobility, based on the variety of environmental zones they are found in and the lack of site diversity. The high level of mobility, coupled with the rapid replacement of these points, may help explain the seemingly large numbers of sites with Middle Archaic assemblages. Curiously, the later Guilford phase sites are not as widely distributed, perhaps suggesting that only certain micro-environments were used (cf. Ward [1983:68-69] who would likely reject the notion that substantially different environmental zones are, in fact, represented).

Recently Abbott et al. argue for a combination of these models, noting that the almost certain increase in population levels probably resulted in a contraction of local territories. With small territories there would have been significantly greater pressure to successfully exploit the limited resources by more frequent movement of camps. They discount the idea that these territories could have been exploited from a single base camp without horticultural technology. Abbott and his colleagues conclude, "increased residential mobility under such conditions may in fact represent a common stage in the development of sedentism" (Abbott et al. 1995:9).

From excavations at a Sandhills site in Chesterfield County, South Carolina, Gunn and his colleague (Gunn and Wilson 1993) offer an alternative model for Middle Archaic settlement. He accepts that the uplands were desiccated from global warming, but rather than limiting occupation, this environmental change made the area more attractive for residential base camps. Gunn and Wilson suggest that the open, or fringe, habitat of the upland margins would have been attractive to a wide variety of plant and animal species.

The Late Archaic, usually dated from 6,000 to 3,000 or 4,000 B.P., is characterized by the appearance of large, square stemmed Savannah River projectile points (Coe 1964). These people continued to intensively exploit the uplands much like earlier Archaic groups with, the bulk of our data for this period coming from the Uwharrie region in North Carolina.

One of the more debated issues of the Late Archaic is the typology of the Savannah River Stemmed and its various diminutive forms. Oliver, refining Coe's (1964) original Savannah River Stemmed type and a small variant from Gaston (South 1959:153-157), developed a complete sequence of stemmed points that decrease uniformly in size through time (Oliver 1981, 1985). Specifically, he sees the progression from Savannah River Stemmed to Small Savannah River Stemmed to Gypsy Stemmed to Swannanoa from about 5000 B.P. to about 1,500 B.P. He also notes that the latter two forms are associated with Woodland pottery.

This reconstruction is still debated with a number of archaeologists expressing concern with what they see as typological overlap and ambiguity. They point to a dearth of radiocarbon dates and good excavation contexts at the same time they express concern with the application of this typology outside the North Carolina Piedmont (see, for a synopsis, Sassaman and Anderson 1990:158-162, 1994:35).

In addition to the presence of Savannah River points, the Late Archaic also witnessed the introduction of steatite vessels (see Coe 1964:112-113; Sassaman 1993), polished and pecked stone artifacts, and grinding stones. Some also include the introduction of fiber-tempered pottery about 4000 B.P. in the Late Archaic (for a discussion see Sassaman and Anderson 1994:38-

44). This innovation is of special importance along the Georgia and South Carolina coasts, but seems to have had only minimal impact in the uplands of South or North Carolina.

There is evidence that during the Late Archaic the climate began to approximate modern climatic conditions. Rainfall increased resulting in a more lush vegetation pattern. The pollen record indicates an increase in pine which reduced the oak-hickory nut masts which previously were so widespread. This change probably affected settlement patterning since nut masts were now more isolated and concentrated. From research in the Savannah River valley near Aiken, South Carolina, Sassaman has found considerable diversity in Late Archaic site types with sites occurring in virtually every upland environmental zone. He suggests that this more complex settlement pattern evolved from an increasingly complex socio-economic system. While it is unlikely that this model can be simply transferred to the Sandhills of South Carolina without an extensive review of site data and micro-environmental data, it does demonstrate one approach to understanding the transition from Archaic to Woodland.

Woodland Period

As previously discussed, there are those who see the Woodland beginning with the introduction of pottery. Under this scenario the Early Woodland may begin as early as 4,500 B.P. and continued to about 2,300 B.P. Diagnostics would include the small variety of the Late Archaic Savannah River Stemmed point (Oliver 1985) and pottery of the Stallings and Thoms Creek series. These sand tempered Thoms Creek wares are decorated using punctations, jab-and-drag, and incised designs (Trinkley 1976). Also potentially included are Refuge wares, also characterized by sandy paste, but often having only a plain or dentate-stamped surface (Waring 1968). Others would have the Woodland beginning about 3,000 B.P. and perhaps as late as 2,500 B.P. with the introduction of pottery which is cord-marked or fabric-impressed and suggestive of influences from northern cultures.

There remains, in South Carolina, considerable ambiguity regarding the pottery series found in the Sandhills and their association with coastal plain and piedmont types. The earliest pottery found at many sites may be called either Deptford or Yadkin, depending on the research or their inclination at any given moment.

The Deptford phase, which dates from 3050 to 1350 B.P., is best characterized by fine to coarse sandy paste pottery with a check stamped surface treatment. The Deptford settlement pattern involves both coastal and inland sites.

Inland sites such as 38AK228-W, 38LX5, 38RD60, and 38BM40 indicate the presence of an extensive Deptford occupation on the Fall Line and the Inner Coastal Plain/Sand Hills, although sandy, acidic soils preclude statements on the subsistence base (Anderson 1979; Ryan 1972; Trinkley 1980). These interior or upland Deptford sites, however, are strongly associated with the swamp terrace edge, and this environment is productive not only in nut masts, but also in large mammals such as deer. Perhaps the best data concerning Deptford "base camps" comes from the Lewis-West site (38AK228-W), where evidence of abundant food remains, storage pit features, elaborate material culture, mortuary behavior, and craft specialization has been reported (Sassaman et al. 1990:96-98; see also Sassaman 1993 for similar data recovered from 38AK157).

Further to the north and west, in the Piedmont, the Early Woodland is marked by a pottery type defined by Coe (1964:27-29) as Badin.[3] This pottery is identified as having very fine sand in the paste with an occasional pebble. Coe identified cord-marked, fabric-marked, net-impressed, and plain surface finishes. Beyond this pottery little is known about the makers of the Badin wares and relatively few of these sherds are reported from South Carolina sites.

[3] The ceramics suggest clear regional differences during the Woodland which seem to only be magnified during the later phases. Ward (1983:71), for example, notes that there "marked distinctions" between the pottery from the Buggs Island and Gaston Reservoirs and that from the south-central Piedmont.

Somewhat more information is available for the Middle Woodland, typically given the range of about 2,300 B.P. to 1,200 B.P. In the Piedmont and even into the Sand Hills, the dominant Middle Woodland ceramic type is typically identified as the Yadkin series. Characterized by a crushed quartz temper the pottery includes surface treatments of cord-marked, fabric-marked, and a very few linear check-stamped sherds (Coe 1964:30-32). It is regrettable that several of the seemingly "best" Yadkin sites, such as the Trestle site (31An19) explored by Peter Cooper (Ward 1983:72-73), have never been published.

Yadkin ceramics are associated with medium-sized triangular points, although Oliver (1981) suggests that a continuation of the Piedmont Stemmed Tradition to at least 1650 B.P. coexisted with this Triangular Tradition. The Yadkin in South Carolina has been best explored by research at 38SU83 in Sumter County (Blanton et al. 1986) and at 38FL249 in Florence County (Trinkley et al. 1993)

In some respects the Late Woodland (1,200 B.P. to 400 B.P.) may be characterized as a continuation of previous Middle Woodland cultural assemblages. While outside the Carolinas there were major cultural changes, such as the continued development and elaboration of agriculture, the Carolina groups settled into a lifeway not appreciably different from that observed for the previous 500-700 years. From the vantage point of the Middle Savannah Valley Sassaman and his colleagues note that, "the Late Woodland is difficult to delineate typologically from its antecedent or from the subsequent Mississippian period" (Sassaman et al. 1990:14). This situation would remain unchanged until the development of the South Appalachian Mississippian complex (see Ferguson 1971).

Previous Archaeological Studies and Research Orientation

Sassaman and Anderson (1994:53-98) do an admirable job of discussion the key Middle Archaic sites in the South Carolina region and no effort is made to synthesize their discussions. Instead, this discussion will focus entirely on the previous research at 38LX115 (which has been briefly alluded to in the **Introduction** to this study).

The initial survey of 38LX115 was conducted during an early compliance project (Carrillo 1976). The survey included using posthole diggers to examine a series of 34 250-foot long transects, representing a 10% sample of the proposed sewer easement. No sites were found using this technique, but several sites, including 38LX115, were found by examining areas thought to represent a high potential for archaeological remains. Although the report is unclear, it appears that all 45 specimens collected from the site were found in survey contexts and that the posthole tests at the site were all negative.

The available information from the site, therefore, suggests that site density was modest, perhaps even light. Beyond this, little more can be assumed from the available information. There is, for example, no indication of any depth to the remains (in fact the contrary is more likely — with the artifacts all found on the surface because of erosional conditions. Nor is there any indication of horizontal concentrations of artifacts at the site. The artifact-specific data does indicate a strong preference for quartz material and, in fact, no extralocal specimens were recovered. The absence of exotics suggests that the site occupants tended to use widely available Fall Line and Piedmont raw materials. Finally, since no diagnostic materials were recovered from the site it is not possible to suggest a time period for the site's occupation. Nevertheless, Carrillo suggests that "most of the activity [within the drainage] is representative of the Archaic Period" (Carrillo 1976:14). This, however, is based on the recovery of one diagnostic item — a Savannah River Stemmed point from site 38LX121. There were at least a few sherds, indicative of a Woodland occupation, present at several sites on the survey, including 38LX116 and 38LX121.

In terms of boundary definition, we can only assume that the site size was based on the recovery of materials from erosional areas. One likely source might be the powerline easement at the north edge of the project area and another might have been along the road which bisects the ridge north-south. Nevertheless, there is no clear evidence and no way to eliminate the possibility that at least some of the boundary definition

was based on the erosional movement of materials.

The information which can be reconstructed from Carrillo's survey seems to suggest a fairly small site with a fairly limited span of use. There is nothing to suggest that the site was revisited over a period of years, nor that it might contain intact evidence of habitation activities. In sum, it appears to be generally typical of the small lithic scatters found in Piedmont settings.

While few research questions present themselves from the information currently available for 38LX115, research topics have been outlined by Sassaman and Anderson (1994), based on the Middle and Late Archaic context they developed for the South Carolina Department of Archives and History. These include questions regarding:

- *The typological association of the MALA point and especially its spread to other areas of South Carolina*. To address this question, of course, it would be necessary to identify a site with sealed contexts and large assemblages, similar to the original Pen Point site.

- *The typological significance of the Morrow Mountain I and II divisions*. To be able to address this question sites most not only possess fairly large numbers of these points, but there must also be assemblages of preforms, discarded points, and flakes, all securely associated with the points.

- *The temporal placement of the Morrow Mountain phase in South Carolina's Middle Archaic chronology*. This question demands, of course, the presence of sealed features capable of providing either radiometric or at least OCR dates.

Furthermore, they note that there is much variation in settlement at different locations (Sassaman and Anderson 1994:148). Urging additional research, they note that it is essential to develop models that are appropriate for the specific locations being examined. It may, therefore, not be possible to fit 38LX115 into an existing subsistence-settlement system. They also caution against the a priori belief that the nearby sandhill environment is "marginal," urging that the questions, "marginal to whom?" and "marginal to what?" be carefully considered and addressed. While not explicitly stated, there is a presumption that sites capable of contributing detailed environmental and subsistence data are of special interest in the exploration of this question. Consequently, sites must possess, again, sealed deposits which can securely dated. Soils should be promising for the recovery pollen and features with ethnobotanical remains are critical for subsistence research.

Many of the research questions posed by Sassaman and Anderson (1994:183-192) are so broad as to be best addressed through comparison research incorporating either existing records or collections from multiple sites. Others are primarily methodological and are related to the techniques used to either identify or document Archaic sites. Some research topics, however, are clearly appropriate for individual site locations. For example:

- *What information about group size or duration of occupation can be determined from assemblages? Can special activity areas be identified within larger assemblages? Are structural remains present? Are the remains that are found the result of one or a few visits, numerous visits, or seasonal or year-round encampments?* To address these questions the authors note that block excavations are necessary, but they offer relatively little advice on the types of data sets required to address these questions (see Sassaman and Anderson 1994:190). Clearly sealed deposits that are relatively contemporaneous are necessary for many of the questions. Likewise, the probability of identifying features is critical for others. Mixed sites, sites lacking

> clear vertical and/or horizontal stratigraphy, and sites lacking features suitable for dating are not likely to produce the information necessary to address these research questions.

Taken together, these questions help define the context against which the data sets present at 38LX115 must be compared to determine the site's ability to address significant research questions. Sassaman and Anderson, in a time prior to the refinement of National Register assessments offer some recommendations regarding sites which are clearly eligible. The features which mark eligible sites include:

> (1) Intact buried deposits, particularly assemblages, yielding features or preserved floral and faunal remains. These sites provide the opportunity to refine our knowledge of chronology, subsistence, and typology.
>
> (2) Stratified deposits, with components that can be isolated horizontally or vertically. This would facilitate detailed examination of single periods of occupation.
>
> (3) Any site yielding evidence for structural remains (i.e., post lines or arcs, pithouse-like features).
>
> (4) Areally extensive surface scatters from plowzone or eroded upland context, particularly if evidence for artifact relocation beyond more than a few meters is minimal, or from large, dense sites in similar settings where shallow undisturbed deposits are present. Controlled surface collection (i.e., artifact piece plotting) as well as block unit excavations could recover discrete occupational episodes or activities areas on sites of this kind. The Windy Ridge site excavations (House and Wogaman 1978) are an example of a successful excavation of a site of this kind (Sassaman and Anderson 1994:199).

If this outline is reviewed carefully, it becomes apparent that many of the issues previously discussed (i.e., sealed deposits, intact features, clear stratigraphy, etc.) form the basis of their assessment process.

ARCHAEOLOGICAL TESTING

Methodology

With the information available in the initial survey, it was decided that the National Register eligibility of 38LX115 could probably be determined through the excavation of a series of shovel tests at 100 foot intervals (which would begin to define the site's location), followed by closer interval shovel tests (which would further refine the site boundaries and also assist in collecting additional information about the site). We also anticipated the excavation of several small test units to allow better evaluation of site integrity and collection of information regarding the nature of the remains present at the site. Substantive issues guiding this decision were:

- the need to better determine the stratigraphy and depth of deposits at the site,
- the nature of the materials associated with any stratigraphic levels that might exist,
- the prevalence and association of unusual materials such as soapstone, hematite, charcoal, or bone, and
- the presence of features or concentrations of artifacts.

We anticipated using units larger than 2-feet only if the shovel tests and 2-foot units revealed some evidence of stratigraphy. Under those circumstances we felt that larger, more formal test units would be appropriate. They would help validate the results from the smaller units and would also provide a larger sampling of data from across the site.

Upon arrival at the site several features caused us concern about the site's integrity. First, erosion along the woods road which bisected the site north-south, revealed very little A horizon, suggesting that much of the area had a reduced horizon where site integrity would be expected. Second, it appeared that there had been extensive grading and ground movement in the associated powerline. This might well have provided extensive open areas to the initial investigators. And third, we found evidence of logging on site, which suggested that the area — at some time in the past — had been exposed to erosive activity.

We initially laid in a series of five shovel test transects, running south from the powerline easement at the north edge of the site (Figure 7). Each transect was 100 feet apart and the individual shovel tests on each transect were 100 feet apart. Five shovel tests were excavated on Transects 1 - 4. This took us across the crest of the ridge and to the edge of the southern side slope. It also fully examined the saddle which was revealed by the contour mapping available for the project area. By the time we reached Transect 5 we were completely off the ridge and into the lower floodplain. This was outside the project footprint, indicating that we had begun Transect 1 too far to the west. As a result we laid in a sixth transect, 100 feet east of Transect 1, excavating a series of five shovel tests on this new transect.

All shovel tests were approximately one-foot square and were excavated into the subsoil, usually to a maximum depth of about 1.0 to 1.2 feet below the surface. All soils were screened through ¼-inch mesh and soil profiles were recorded as appropriate, using Munsell soil colors. All shovel tests were backfilled at the completion of the work.

Where positive shovel tests were identified during this initial testing we excavated additional shovel tests at 25 foot intervals on cardinal directions. These tests were continued until we had at least two negative shovel tests or until we intercepted shovel testing from another transect.

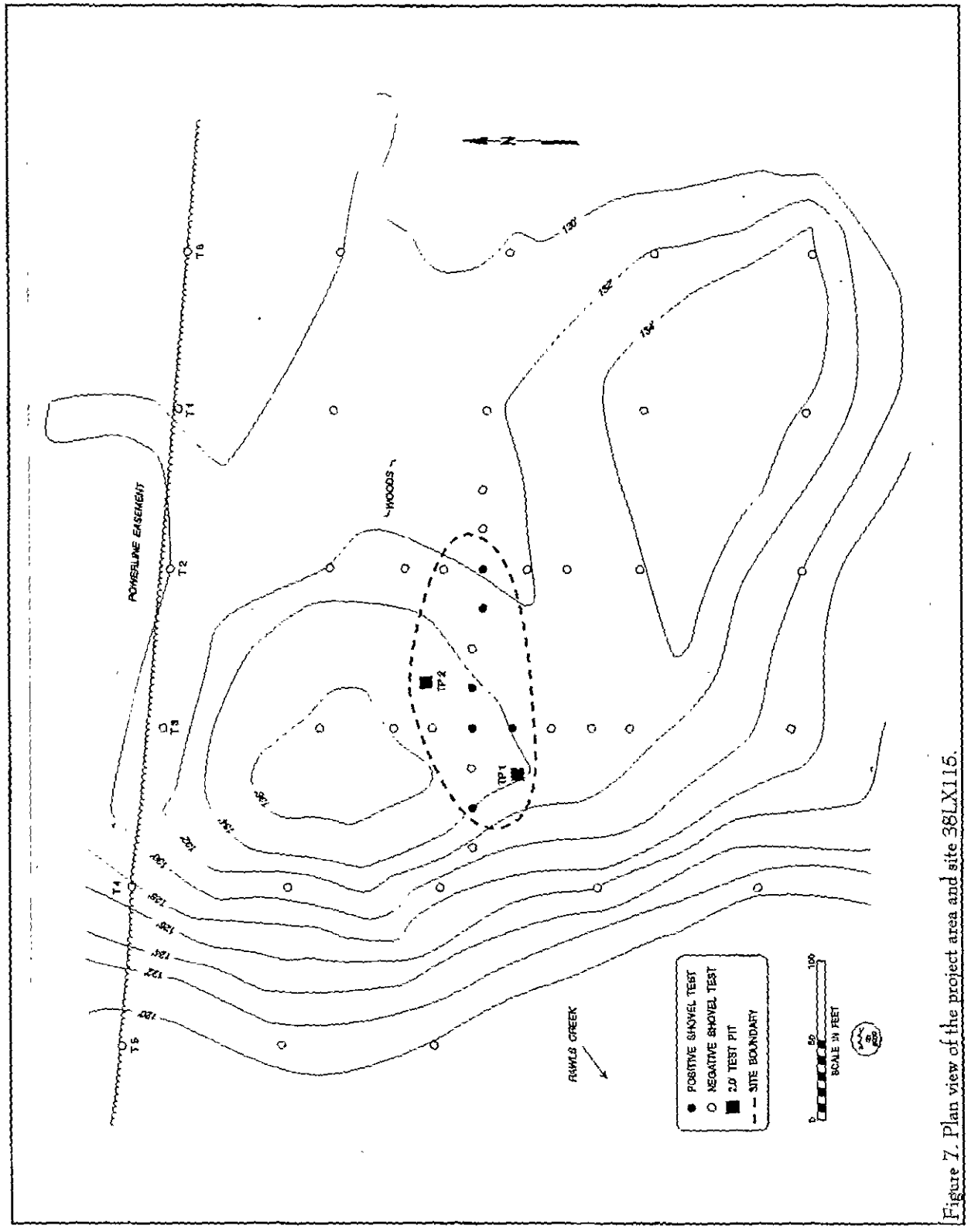

Figure 7. Plan view of the project area and site 38LX115.

As a result of this work, 28 shovel tests were excavated at 100 foot intervals and an additional 16 tests were excavated at 25 foot intervals. Of these, six (14%) were positive.

Finally, two 2-foot units were excavated within the site area as it was defined by the shovel testing. Test Pit 1 was situated at the southwestern edge of the site, while Test Pit 2 was placed in the northern portion of the site. The placement of these tests was not entirely random. We sought to place them in the general vicinity of shovel tests previously excavated by SHPO Valerie Marcil during her visit to the site. Since both of her tests were reported to be positive, it seemed appropriate to get a better idea of what might be in these site areas.

The test units laid in with a north-south orientation and were excavated by natural soil zones, with each zone screened through ¼-inch mesh. At the conclusion of the work the units were cleaned, photographed, and the profiles were drawn. Afterward the units were backfilled.

Findings

Laboratory Methods

As previously mentioned, the cleaning of artifacts and cataloging of the specimens was conducted at Chicora laboratories in Columbia immediately following the field investigations. The materials will be curated at the South Carolina Institute of Archaeology and Anthropology and have been cataloged using that institution's accessioning practices. No specimens were identified which required conservation or stabilization. Specimens were packed in plastic bags and boxed. Field notes were prepared on pH neutral, alkaline buffered paper and photographic materials were processed to archival standards. All field notes, with archival copies, will also be curated with this facility.

Two primary raw materials were identified in the lithic collections. One was quartz, which was usually a translucent white, but occasionally yellowish-brown, or nearly clear (quartz crystal). This material is found throughout the Carolina Piedmont and might have been obtained from either veins or as cobbles in Piedmont river gravels.

Most of the remaining material may be classified as metavolcanic, meaning partially metamorphosed volcanic rocks. This might include flow banded rhyolite, porphyritic rhyolite, plain rhyolite, felsic tuff, welded vitric tuff or breccia tuff. These are, like the quartz, materials which are fairly common in the Piedmont and considered local.

Another material (but found as only one specimen) was quartzite, also called by orthoquartzite by some researchers. This material is typically a light brown to white and has been characterized as a chalcedony cemented quartz arenite by one researcher (Anderson et al. 1982). It probably originated from Coastal Plain outcrops and, as a result, may be considered an extralocal or exotic material.

Debitage categories included both primary (defined as flakes with 90% or more cortex) and interior (defined as having no cortex). These categories, widely used, are briefly explained by Yohe (1996:54-56; for further information see Blanton et al. 1986 or Oliver et al. (1986).

Fire cracked rock, typically considered the result of "hot rock" cooking in earth ovens or by stone boiling, may also simply represent hearth remains. They are typically characterized by reddening and/or cracking of cortex-bearing river cobbles, frequently quartz. Nevertheless, it is at times difficult to distinguish such materials from naturally occurring rock. Furthermore, House and Wogaman noted years ago that, "it is very difficult, even in the laboratory, to distinguish heat-induced cracking and discoloration of weathered rocks" (House and Wogaman 1978:58).

Shatter is often called chunks by other researchers. Either term is typically applied to angular pieces of debitage of various sizes. They lack observable striking platforms, dorsal and ventral faces, or other characteristics of flakes. These items are often, although not always blocky and angular. Shatter is thought to have been produced in greatest numbers in the very earliest stages of tool production.

Hammerstones are typically large, rounded pieces of rock with observable areas of battering or cortex damage. They were probably used for percussion

knapping, although other functions are entirely possible.

Points, also called hafted bifaces by *some, are symmetrical,* pointed bifaces which are modified for hafting. The diagnostic lithic remains were compared to published typological descriptions for the various projectile points such as Coe (1952, 1964), Oliver (1981), and South (1959). Items which can not be securely identified because of damage or which lack the often definitive basal sections are classified simply as bifaces.

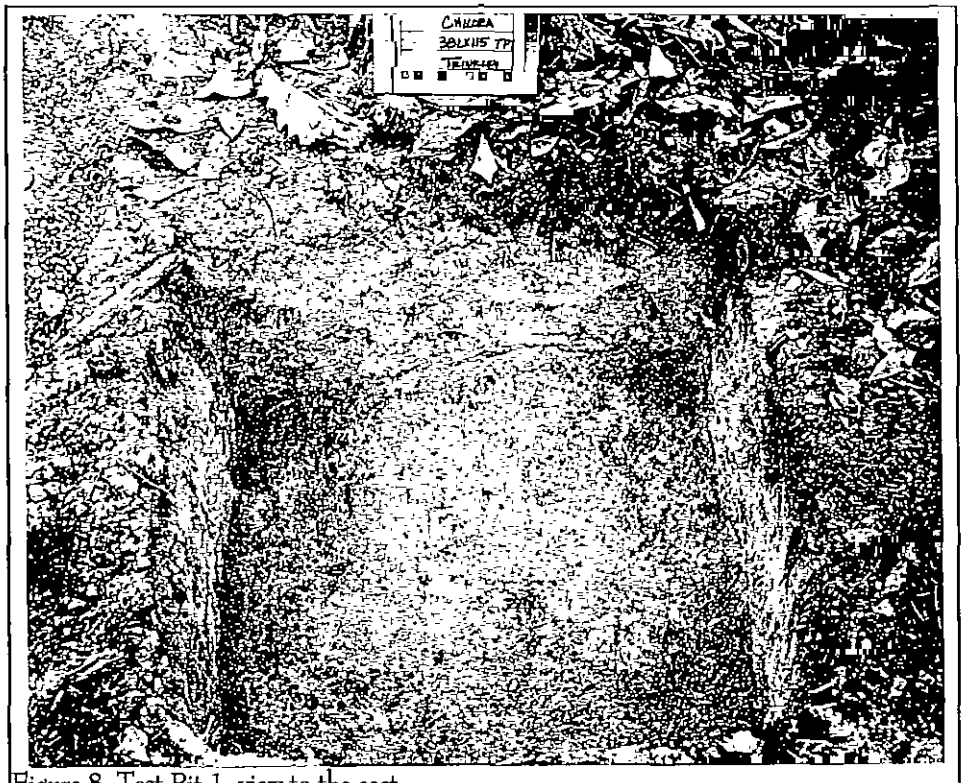

Figure 8. Test Pit 1, view to the east.

At the testing level tools are defined very simply, being placed in broad morphological categories. Our laboratory methods, for example, define a biface as an artifact with flakes removed on both sides (not distinguishing between preforms, early stage reductions, and so forth); a core is a piece of raw material from which flakes have been removed; an end scraper is a blade tool with at least one convex end which exhibits a steep angle; a used flake is a chip of stone that was used as a tool, exhibiting edge damage or wear; and a side scraper is a flake tool in which one of the long edges was retouched to serve as the scraping edge. These definitions generally follow those provided by Yohe (1996).

Soils and Stratigraphy

Although the depths of the different soil zones varies and while there are topographic differences in the elevations, each excavation revealed a very similar profile. Brown (7.5YR5/2) sands from the A horizon varied from about 0.10 to 0.15 foot in depth and probably represent development since the last episode of active erosion. They were sterile in all excavations.

Below was a very pale brown (10YR7/4) sandy clay which varied in depth from 0.45 to 0.65 foot. It was in this level that all of the recovered artifacts were encountered. This zone appears to be a plow damaged B horizon, probably mixing deposits from an earlier, pre-erosion A horizon with the underlying B horizon soils. This suggests that artifacts have been introduced into these soils by plowing or perhaps even disturbance from logging.

This level overlaid a firm mottled reddish yellow (7.5YR6/8) sandy clay. This zone was difficult to excavate, and screen, but was consistently sterile. Below this is a yellowish red (5YR5/6) very firm clay.

The only "features" encountered were natural — tree, root, insect, and rodent stains. Charcoal was not found in any of these stains. The excavations, however, did encounter one small fragment of calcined bone.

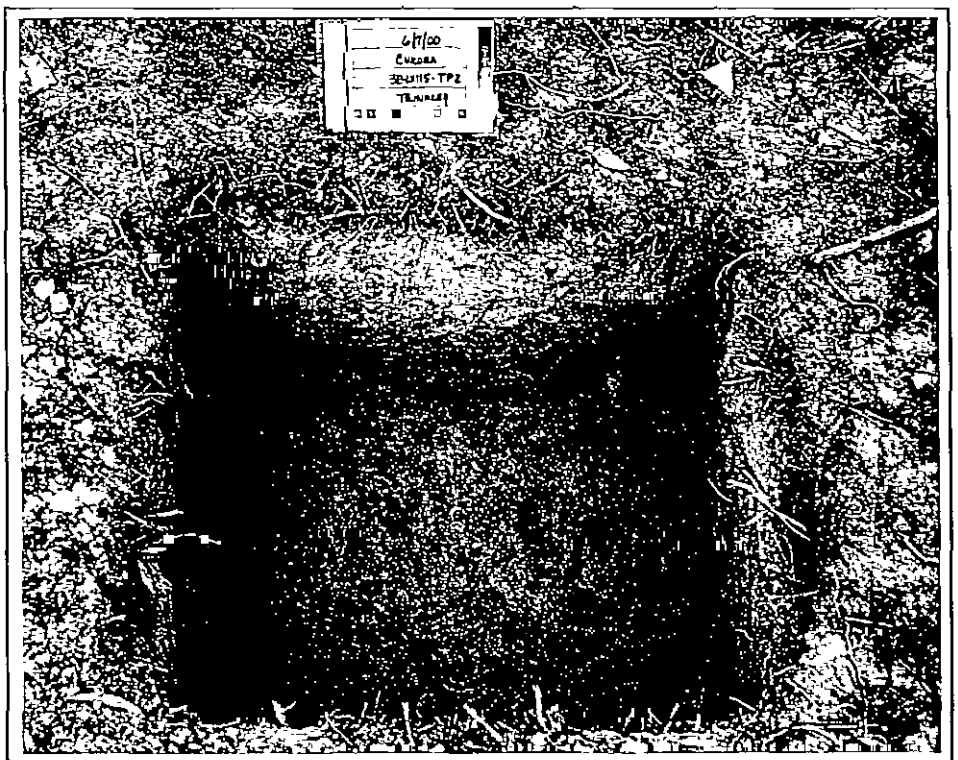

Figure 9. Test Pit 2, view to the east.

Artifacts

The must abundant artifacts recovered from the excavations are flakes (n=29), followed by shatter (n=4). In contrast, tools account for only one specimen — a quartz flake with probably edge wear, classed as a used flake.

When all of these remains are examined by raw material, quartz is the most common material (58.8%), followed by metavolcanics (38.3%), with the one other material (orthoquartzite) accounting for the remaining 2.9% of the assemblage. This is not dissimilar to the breakdown of raw materials identified from 38RD1082, situated to the northeast in the Sand Hills. There quartz accounted for 69.2% of the flakes, while metavolcanics contributed an additional 29.3% of the lithic assemblage. Other material accounted for only 1.5% of the collection.

At 38LX115, 28 of the specimens are interior flakes and only one is a primary flake. Many of these interior flakes are thin and flat, representing what are often called thinning flakes — flakes produced by the resharpening of existing tools.

In general, researchers see a continuum between very a very high proportion of primary flakes and a very high number of interior flakes. When primary flakes are common (perhaps around 25%) and there are a number of early-stage bifaces, it is generally though that the site exhibits quarrying activity involving the reduction of raw materials. At the other end of the continuum are sites with few primary flakes, but large numbers of interior flakes coupled with late-stage bifaces or finished projectile points exhibiting varying stages of wear and resharpening (as is the case at 38LX115). Bifaces were likely brought to such sites either finished or nearly finished.

In support of this analysis, 38LX115 yielded a relatively small collection of shatter — angular waste material that is often (although not exclusively) produced during the early stages of reduction.

This collection of interior flakes, rarity of shatter, low incidence of primary flakes, absence of hammerstones, failure to recover any preforms all suggest the site was used almost exclusively for resharpening or maintaining existing tool forms.

The last item worthy of at least brief mention is the one fragment of calcined bone recovered from the excavations. Found in Test Pit 1, the item suggests that faunal material was once present on the site, but is

today preserved only when the bone was thoroughly burned. The effects of acidic soils, rapid leaching, and depositional factors all appear to have mitigated against faunal materials being preserved unless calcined. While the item appears to some sort of mammalian remain, further identification is not possible.

Table 1.
Artifacts Recovered from 38LX115

	Quartz		OQ	Metavolucanic			
Provenience	P	I	S	I	S	Tool	Bone
T 2, ST 3		1	1		1		
25' W T 2, ST 3						1	
T 3, ST 3		2		1			
25' E T 3, ST 3		1					
25' S T 3, ST 3	1						
50' W T 3, ST 3		1					
TP 1, Lv 2		8		4			1
TP 2, Lv 2		5		5	2		

OQ = orthoquartzite; P = primary; I = interior; S = shatter

CONCLUSIONS

Site Evaluation

The mechanism for the evaluation of 38RD1082 has been previously discussed at. Briefly, it involves (1) identifying the site's data sets, (2) identifying the historic context applicable to the site, (3) identifying significant research questions the site *might* be able to address, (4) evaluating the site's integrity in order to determine if it can, in fact, address the proposed research questions, and (5) identifying truly significant research questions among all of the questions the site can, in fact, address.

The previous chapter has just outlined the data sets present (and not present) at the site. We have, for example, recovered relatively small quantities of lithics, dominated by flakes, with a few examples of shatter. Tools are limited to a single used flake. Features were not identified, nor was any vertical stratigraphy found at the site. Faunal material, represented by a single example, is entirely calcined, dramatically limiting its interpretative potential. Ethnobotanical remains were not found in any of the tests.

As a result, the data sets are sparse. The lack of a range of tools suggests the site is unable to shed much light on intra-site work areas. It is also unlikely (coupled with the absence of chronological control discussed below) that the data sets are sufficient to address any significant issues involving technological changes.

The data sets (i.e., assemblage of MALA points) are not present for the typological study of this intriguing type — one of the Middle Archaic primary research issues proposed by Sassaman and Anderson (1994).

Although this study synthesizes the Archaic Period, providing a generalized context for the data present at the site, the reader is also referred to the excellent study produced by Sassaman and Anderson (1994) which is intended precisely as a context for cultural resource management investigations such as this. Contributing to this context, of course, is the environmental background research, especially that appropriate for the Middle Archaic.

In a similar fashion, this study has isolated a range of research questions appropriate for Middle Archaic sites such as 38LX115. These include a broad range of issues explored by other investigators at other Archaic sites in primarily North Carolina, South Carolina, and Georgia. Also included are the generalized issues reviewed by Sassaman and Anderson (1994).

This review has, it is hoped, weeded out insignificant research questions, so that the fifth step in the process is not necessary. What does remain, however, is determining whether 38LX115 has the integrity and data sets necessary to address the research questions that have been proposed. If the site has the integrity and data sets to address the research questions, then it should be considered eligible. Otherwise, it must be recommended not eligible.

Virtually all of the research questions proposed require that the site exhibit clear vertical, or at least horizontal, separation of different cultural remains. For example, it is not possible to explore the use of raw materials or technological innovations by the makers of Morrow Mountain tools, if it isn't possible to segregate those remains from earlier and later deposits. Nor is it possible to explore the differences in the Morrow Mountain I and II points if we can't identify with any degree of certainty the associated assemblages. At 38LX115 we are not only unable to identify such clear stratigraphic separation, but we are not even certain when the site was occupied since there are no diagnostic materials.

Even horizontal stratigraphy is not well defined at the site. Again, this is at least partially the result of

not having any clear temporal control. In addition, we have found evidence of extensive erosion and mixing of the soils — which has likely thoroughly mixed whatever deposits were present.

Many of the research questions demand the identification of features. Such sealed deposits are essential for radiometric dating and are very important for other research. In fact, features can often be a satisfactory replacement for clear stratigraphy. Unfortunately, at 38LX115, we were unable to identify any evidence of features. While it remains *possible* that leached features might be recognizable through extensive piece plotting of artifacts or perhaps even fire cracked rock, this seems unlikely given that cultural materials are confined to so shallow a lens at the site. If features are present they much be either very shallow or widely dispersed. Both present additional problems in recognition and interpretation.

Turning to the critical issues of integrity outlined by Sassaman and Anderson (1994:199) we find (1) intact buried deposits, particularly those with features and preserved floral and faunal remains, (2) stratified deposits, (3) evidence of structural remains, and (4) areally extensive scatters with evidence of little movement. Site 38LX115 does not appear to meet any of these criteria.

Recommendations

As a result of this evaluative process, we recommend 38LX115 as not eligible for inclusion on the National Register of Historic Places. The recommendation, of course, must be independently evaluated by the lead federal agency in consultation with the State Historic Preservation Office. If our recommendation is accepted, then no additional management activities are required at the site and construction may continue as originally proposed.

While unlikely, it is possible that additional, unsuspected, materials may be found as construction progresses. If so, the contractor should notify report the material to the State Historic Preservation Office, or Chicora Foundation (the process of dealing with late discoveries is discussed in 36CFR800.13(b)(3)). No further land altering activities should take place in the vicinity of these discoveries until they have been examined by an archaeologist and, if necessary, have been processed according to 36CFR800.13(b)(3).

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